

ABSTRACT

Disclosed is a null mutant (or knockout) rodent comprising in its germ cells an artificially induced PTTG null mutation. In some embodiments, the null mutant rodent can be generated by way of homologous recombination in an embryonic stem cell or 5 germ cell. The inventive null mutant rodent can be used to study mammalian physiology at the cellular, tissue, and/or organismal level with respect to various phenotypes, including hyperglycemia, hypoinsulinaemia, hypoleptinemia, diabetes, chromosomal aneuploidy, premature centromere division, chromosomal damage, aberrant mitotic cellular division, thrombocytopenia, thymic hyperplasia, splenic hypoplasia, testicular 10 hypoplasia, and female subfertility. Also disclosed is an animal model for diabetes. Also disclosed is a somatic or germ cell obtained from the null mutant rodent. Also disclosed is a cell line derived from a cell obtained from the null mutant rodent.